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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,218	08/22/2003	Manfred Engelhardt	GR 98 P 2661 D	1417
24131	7590	06/17/2004	EXAMINER	
LERNER AND GREENBERG, PA P O BOX 2480 HOLLYWOOD, FL 33022-2480			NGUYEN, DILINH P	
			ART UNIT	PAPER NUMBER
			2814	

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/646,218	<b>Applicant(s)</b> ENGELHARDT, MANFRED	
	<b>Examiner</b> DiLinh Nguyen	<b>Art Unit</b> 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Objections*

Claim 5 recites the limitation "the first diffusion barrier structure and the second diffusion barrier structure" in lines 6-7. There is insufficient antecedent basis for this limitation in the claim.

### *Claim Rejections - 35 USC § 101*

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claims 1-5 provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 7-11 of copending Application No. 09/816923. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Mu et al. (U.S. Pat. 5612254).

Mu et al. disclose a method of producing an integrated circuit configuration comprises:

forming a diffusion barrier layer 90 on a substrate 20 having at least a first insulating layer 50 with a first conductive structure 61 embedded therein;

forming a second insulating layer 91 on the diffusion barrier layer;

etching a contact hole into the second insulating layer above the first conductive structure, wherein a surface of the first conductive structure is covered with the diffusion barrier layer within the hole;

forming spacers (vertical portions of a layer 93) on side walls of the contact hole, the spacers acting as a barrier to diffusion of a material from the first conductive structure into the second insulating layer;

opening the contact hole as far as the surface of the first conductive structure;

and

forming in the contact hole a second conductive structure 94 conductively connected to the first conductive structure (fig. 9, column 8, lines 40 et seq.).

- Regarding claim 3, Mu et al. disclose that forming the first electrically conductive structure by applying the first insulating layer 50 to the substrate 20; producing an opening with a bottom and side walls in the first insulating layer; depositing and structuring a first conductive barrier layer for forming an electrically conductive first diffusion barrier structure 60 covering the bottom and the side

walls of the opening; and forming the first conductive structure by filling the opening with conductive material (figs. 5-7, column 6, lines 45-55).

- Regarding claim 5, Mu et al. disclose that forming the conductive structure 61 with a material selected from the group consisting of copper (column 6, lines 56) or copper, silver, gold (claim 18); forming one of the spacers, diffusion barrier structures 60 and 93 with a materials selected from the group consisting of TiN (column 6, line 50 and column 8, line 45) or Ta, SiN, SiON (claim 18).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mu et al. (U.S. Pat. 5612254) in view of Ting et al. (U.S. Pat. 5969422).

Mu et al. substantially discloses all the limitations as claimed above except the spacers of electrically conductive material.

However, Ting et al. disclose that spacers 22 can be made of electrically conductive material (fig. 2, column 9, line 24). Therefore, it would have been obvious to one having ordinary skill in the art to form the spacer of Mu et al. with the material as set forth above because as taught by Ting et al., such conductive material would function as a barrier layer and an adhesion layer which provide the known purpose of preventing diffusion of Cu ions (column 9, lines 5-26).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DiLinh Nguyen whose telephone number is (571) 272-1712. The examiner can normally be reached on 8:00AM - 6:00PM (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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